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FERTILIZER SPREADER MODIFIED TO APPLY INSECTICIDAL DUSTS

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During the investigation of DDT for the control of larvae of the Japanese beetle (Popillia japonica Newm.) in turf and in nursery plots, it was found that the commercial fertilizer spreaders available did not spread 10-percent DDT dust uniformly. The dust tended to become compact and to "bridge-over" in the hopper. Most of this difficulty was overcome by installing an agitator in the hopper, above the rotor bar at the bottom of the hopper. The modification described herein for a 3-foot commercial spreader of the type shown in figures 1 and 2 may be applied to other spreaders of similar construction or to larger spreaders.

Materials

The following materials are required to alter a 3-foot spreader:

A. 4 - Annular ball bearings 1/2-inch wide, 7/8-inch bore, and 1 7/8 inches outside diameter
B. 4 - Felt washers, 3 inches in diameter, 7/8-inch hole
C. 4 - Shaft collars, 7/8-inch bore
D. 8 ft. - 7/8-inch shafting
E. 2 - 15-tooth sprockets, 5/8-inch pitch, 7/8-inch bore
F. 18 in. - 5/8-inch pitch sprocket chain
G. 2 - 5/8-inch pitch sprocket chain half links
H. 4 - Flat metal washers, 7/8-inch hole, 3 inches in diameter
I. 6 - Bushings, 7/8-inch bore, 1 7/8 inches in diameter, 3/4 inch long.
J. 2 - Bushings, 7/8-inch bore, 1 7/8 inches in diameter, 2 inches long (not shown in figure)
K. 8 ft. - 5/16-inch rod
L. 16 - 5/16-inch nuts

The cost of these materials in Philadelphia, Pa., in 1948 was about 30 dollars.

Construction

The 3-foot spreader was modified in the following manner: The pins in the spatter bar were removed, and the wheels and the rotor bar were taken off the spreader. The rotor bar, to which the wheel was welded, was cut off about 2 5/8 inches from the outside of the hub of the wheel. Two annular bearings (fig. 1, A) were placed in the center partition of the hopper and one in each end of the hopper. Felt washers (fig. 1, B) and metal washers (fig. 1, H) were installed to keep dust from getting into these bearings and to keep them lubricated. A bushing (J) 2 inches long was placed in the hub of the wheel and secured by a 1/4-inch pin, which went completely through the bushing and the 7/8-inch shaft (fig. 2, D). The 7/8-inch shaft replaced the rotor bar and extended from the outside of the hub of each wheel to the center of the partition in the hopper. On one side of the spreader a sprocket (fig. 2, E) was secured to the shaft by a pin, which passed through the hub of the sprocket and the shaft. The other sprocket was mounted on the end of the agitator shaft. On the agitator shaft in each compartment of the hopper, two 5/16-inch rods (fig. 1, K) were fastened by drilling holes and securing the rods in place by nuts (fig. 1, L) on each side of the shaft. To install the agitator shaft, a hole 7/8 inch in diameter was drilled in each end and in the center partition of the hopper so that the distance from the center of the agitator shaft to the center of the drive shaft was 4 inches.

The agitator axle and the rotor axles were held in position by 7/8-inch shaft collars (fig. 1, C).

Three bushings (fig. 1, I) 3/4 inch long were mounted on each rotor axle at each ring on the spatter bar. The outside diameter of these bushings was the same as the inside diameter of the rings of the spatter bar. The bushings for the spatter bar were secured to the axle and spatter bar by drilling 1/4-inch holes through the spatter-bar rings, bushings, and axle. The bushings for the wheels and spatter bar were made from 1 15/16-inch steel shafting.

For spreaders larger than 3 feet in width it is advisable to use a two-piece agitator shaft, driven from both wheels.

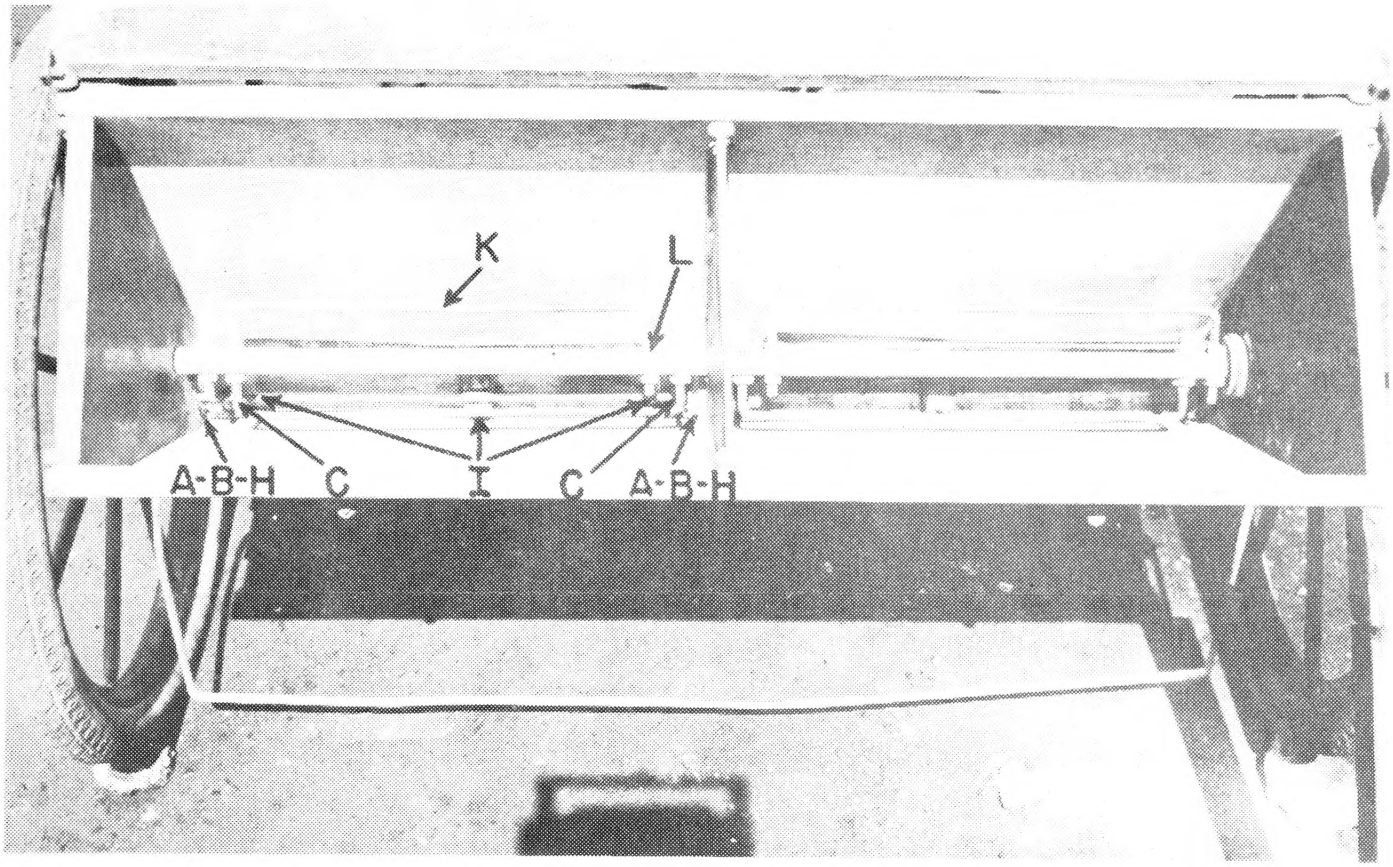

Figure 1. Interior of hopper of spreader.

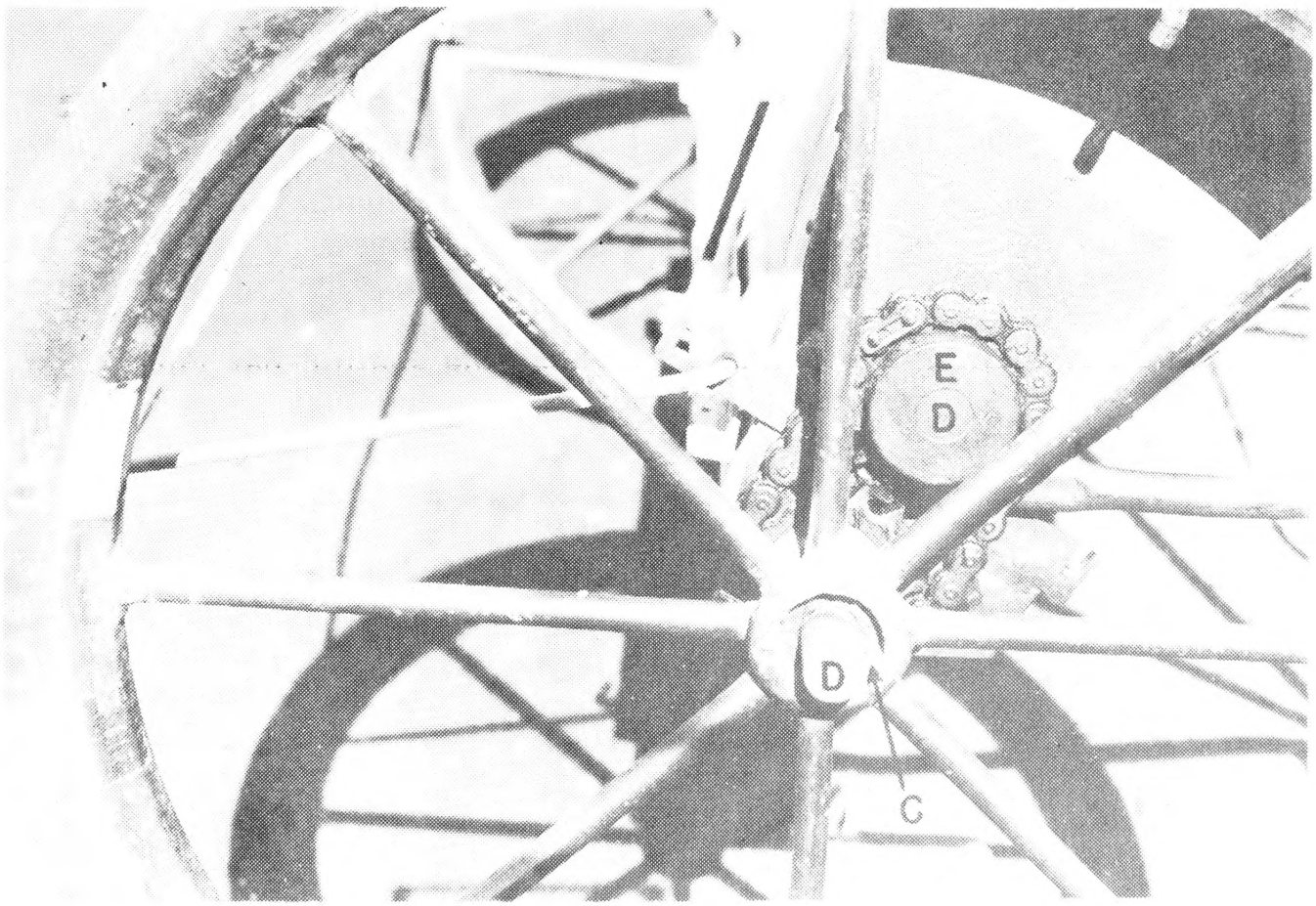

Figure 2. Side view of spreader.